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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,564	07/31/2006	Peter-Andre Redert	NL 040087	2974

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EXAMINER

CONWAY, THOMAS A

ART UNIT	PAPER NUMBER
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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,564	Applicant(s) REDERT, PETER-ANDRE	
	Examiner THOMAS A. CONWAY	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner's Note

1. The Examiner would like to inform the Applicant that while an objection is not being raised regarding the format of the claims as submitted, for the sake of clarity, the Examiner suggests the claims be amended to remove the numerical reference to figure items within the claim language.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 8** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is unclear what the Applicant means by the recitation of "...values based on a further distance ...". At what point is a distance considered "further". Also, the term "further" seems to be an adjective of comparison but it is unclear to what the comparison is being made or what the basis is for the "values" to be "based on".

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows (see also MPEP 2106):

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

3. **Claims 1-8 are rejected under 35 U.S.C. 101** as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to a particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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positively tie to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. Specifically, the claims recite such steps as “segmenting..., determining..., and assigning...”. However, for example these steps can be performed manually by a human being, and thus would not be tied to a particular machine. The body of the claims must positively recite hardware such as a processor, computer, circuitry, etc, (whatever is disclosed) that is used to perform the steps of the claimed method, and thus tying the claim to a particular machine.

Furthermore, nor do the claims appropriately transform the underlying subject matter as required. The claims need to obtain data that represents a physical object, modify/produce calculated information from this data, and finally create an external depiction that represents the modified/produced calculated information/data, (an external depiction, for example, can be but is not limited to visually displaying the modified data/calculated information). NO NEW MATTER MAY BE ADDED.

4. **Claims 9-10 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter as follows. Claims 9 and 10 appear to define an apparatus/unit using “means plus function” claim language. However, the specification does not disclose corresponding physical structure associated with each claim element. The claim as a whole appears to be nothing more than a collection of software elements, thus defining functional descriptive material per se.

Functional descriptive material may be statutory if it resides on a **“computer-readable medium or computer-readable memory”**. The claim(s) indicated above

lack structure, and do not define a computer readable medium and are thus non-statutory for that reason (i.e., “When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests:

1. Amending the claim(s) to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory (refer to “note” below); or

2. Pointing out where the corresponding structure can be found in the specification that would clearly be indicative of a statutory apparatus, in a 112 6th paragraph sense.

Any amendment to the claim should be commensurate with its corresponding disclosure.

5. **Claim 11 is rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter as follows. Claim 11 defines a computer program product embodying functional descriptive material (i.e., a computer program or computer executable code). However, the claim does not define a “computer-readable

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medium or computer-readable memory” and is thus non-statutory for that reason (i.e., “When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory (refer to “note” below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

“A transitory, propagating signal ... is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” (In re Nuijten, 84 USPQ2d 1495 (Fed. Cir. 2007)). Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a “signal”, the claim as a whole would be non-statutory. Should the applicant’s specification define or exemplify the computer readable medium or memory (or whatever language applicant chooses to recite a computer readable medium

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equivalent) as statutory tangible products such as a hard drive, ROM, RAM, etc, **as well as** a non-statutory entity such as a “signal”, “carrier wave”, or “transmission medium”, the examiner suggests amending the claim to include the disclosed tangible computer readable storage media, while at the same time excluding the intangible transitory media such as signals, carrier waves, etc.

Merely reciting functional descriptive material as residing on a “tangible” or other medium is not sufficient. If the scope of the claimed medium covers media other than “computer readable” media (e.g., “a tangible media”, a “machine-readable media”, etc.), the claim remains non-statutory. The full scope of the claimed media (regardless of what words applicant chooses) should not fall outside that of a computer readable medium.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by S.B. Xu (Qualitative Depth from Monoscopic Cues, Image Processing and its Applications, 1992, Int'l Conf. on, pp 437-440: hereafter “Xu”).

6. **Regarding claim 1**, Xu discloses method of generating a depth map comprising depth values representing distances to a viewer, for respective pixels of an image, the method comprising: segmenting the image into a first segment and a second segment; and assigning a first one of the depth values corresponding to a first one of the pixels of the first segment on basis of a first size of the first segment and assigning a second one of the depth values corresponding to a second one of pixels of the second segment on basis of a second size of the second segment whereby the first one of the depth values is less than the second one of the depth values if the first size is less than the second size (Fig. 1 - See also Table 1: an image signal representing an object to be depth mapped (Fig. 1), an object is labeled 7 which is smaller than the object labeled 8, there is a relation to their area (in pixels)) .

7. **Regarding claim 2**, Xu discloses a method as claimed in claim 1, whereby the first size is computed by determining a first number of neighboring pixels which are disposed on a line extending from a first side of the first segment to a second side of the first segment (Table 1: the area of the segmented areas are calculated by Xu).

8. **Regarding claim 3**, Xu discloses method as claimed in claim 1, whereby the first size is computed by counting a second number of pixels which are disposed inside a contour which is located on an edge of the first segment (Table 1: the area of the segmented areas are calculated by Xu).

9. **Claims 9-11** are rejected for the same reasoning as which was presented with regards to claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Khan et al. (Object based segmentation of video using color, motion and spatial information, Computer Vision and Pattern Recognition, 2001, IEEE Proceedings, Vol. 2, pp II-746 – II-751: hereafter “Khan”).

10. **Regarding claim 4**, Xu discloses the method as claimed in claim 1, but fails to teach whereby the first size is computed by accumulating a set of probability values. Khan discloses whereby the first size is computed by accumulating a set of probability values (Section 2, Maximum Likelihood Estimate, p II -748). Khan segments his depth images and uses the segments to classify areas of similar clusters to improve compression. The segments are accomplished according to the cluster's probability of belonging to a particular segment.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in the method of Xu, the step whereby the first size is computed by accumulating a set of probability values, as suggested by Khan, in order to cluster like depth segments for efficient compression.

11. **Regarding claim 5**, Xu and Khan disclose the method as claimed in claim 4.

Khan further discloses whereby the probability values represent probabilities that respective pixels belong to the first segment (Section 2, Maximum Likelihood Estimate, p II -748).

12. **Regarding claim 6**, Xu and Khan disclose the method as claimed in claim 5. Xu further teaches whereby the set corresponds to pixels disposed on a line extending from a first side of the first segment to a second side of the first segment (Table 1: the area (which would include such information) is calculated).

13. **Regarding claim 7**, Xu and Khan disclose the method as claimed in claim 4.

Khan further disclose whereby the probability values represent probabilities that the first one of pixels and a third one of the pixels belong to the first segment (Section 2, Maximum Likelihood Estimate, p II -748: Khan's calculations include probabilities that span probabilities of all pixels which would include a first and a third).

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14. **Regarding claim 8**, Xu and Khan disclose the method as claimed in claim 4.

Khan further discloses whereby a first one of the probability values is based on a further distance between the first one of the pixels of the first segment and a contour which is located on an edge of the first segment (Section 2, Maximum Likelihood Estimate, p II - 748: see reasoning with regards to claims 7 and 3).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS A. CONWAY whose telephone number is (571)270-5851. The examiner can normally be reached on Monday through Friday 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art
Unit 2624

/Thomas A. Conway/
Examiner, Art Unit 2624